REMARKS

Claims 1-38 are pending in the instant application. Claims 1-37 presently stand rejected. Claims 1, 4-9, 12, 13, 22-27, 29 and 33 are amended. Dependent claim 38 is newly presented. Entry of this amendment and consideration of claims 1-38 are respectfully requested.

Specification

The Examiner is thanked for bringing to Applicants' attention that referenced application serial numbers were missing on pages 7, 8, 10, 13, and 18. Accordingly, Applicants have amended the specification to cure these minor formalities. The amendments are believed to introduce no new matter.

May the Examiner please be advised that the correction to the title and inventor name of the first application referenced in paragraph 32 is to correct what is believed to be an incorrect reference to the intended application. Please note that the present application and the co-pending application now referenced were filed on the same day. Applicants believe the specification now correctly references the application which was originally intended.

Claim Rejections – 35 U.S.C. §102

Claims 1-3, 11-13, 22-33, and 35-37 stand rejected under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 5,917,188 to Atkinson *et al.* ("Atkinson").

Amended claim 1 now recites in pertinent part, "an external cavity laser having an external cavity and a laser source therein...." Applicants submit that Atkinson fails to disclose a laser source within an external cavity. In fact, referring to Figures 2 and 4 of Atkinson, it discloses an ion-doped crystal 507 in a laser cavity, but which is optically excited by a semiconductor diode laser (pumping laser 100) located outside the laser cavity. Thus, ion-doped crystal 507 is not a laser *source* within an external cavity. Consequently, Atkinson fails to anticipate amended claim 1.

Amended claim 22 now recites in pertinent part, "providing an external cavity having a laser source therein...." For the reasons discussed above, Applicants submit that Atkinson fails to anticipate independent claim 22.

Amended claim 33 now recites in pertinent part, "an external cavity laser having an external cavity and a laser source therein...." As discussed above, Applicants submit that Atkinson fails to anticipate claim 33.

Accordingly, Applicants respectfully request that the instant §102(b) rejections for independent claims 1, 22, and 33 be withdrawn. Dependent claims 2-3, 11-13, 23-32, and 35-37 are novel over the prior art of record for at least the same reasons as discussed above in connection with their respective independent claims, in addition to adding further limitations of their own. Accordingly, Applicants respectfully request that the instant §102 rejections be withdrawn.

Claim Rejections – 35 U.S.C. §103

Claims 4-10, 14-21, and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Atkinson in view of U.S. Patent Application No. US 2002/0126345 to Green *et al.* ("Green"). Applicants respectfully traverse the rejections.

May the Examiner please be advised, that the subject matter and claimed inventions of Green and the present application were subject to assignment to the same person at the time of their respective invention dates. In fact, at the time of their respective invention dates, Green and the present application were subject to assignment to New Focus Inc., 5215 Hellyer Avenue, San Jose, CA 95138. Currently, both applications are assigned to Intel Corp., 2200 Mission College Blvd., Santa Clara, CA 95052. Pursuant to 35 U.S.C. § 103(c), which states,

> (c) subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Green shall not preclude patentability under 35 U.S.C. § 103. Accordingly, Applicants respectfully request that the instant §103 rejections be withdrawn for independent claim 14 and dependent claims 4-10, 15-19, 20-21, and 34.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants believe the applicable rejections have been overcome and all claims remaining in the application are presently in condition for allowance. Accordingly, favorable consideration and a Notice of Allowance are earnestly solicited. The Examiner is invited to telephone the undersigned representative if the Examiner believes that an interview might be useful for any reason.

CHARGE DEPOSIT ACCOUNT

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. §1.136(a). Any fees required therefore are hereby authorized to be charged to Deposit Account No. 02-2666. Please credit any overpayment to the same deposit account.

Respectfully submitted,

BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

Date: Jan. 24, 2003

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FIRST CLASS CERTIFICATE OF MAILING

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on January 24, 2003
Date of Deposit

Luci M. Arevalo
Name of Person Mailing Correspondence

Luci M. Arevalo
Signature

01/24/03
Date

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Paragraph 24 has been amended as follows:

> Grid etalon 24 may be a parallel plate solid, liquid or gas spaced etalon, and may be tuned by precise dimensioning of the optical thickness between faces 28, 30 by thermal expansion and contraction via temperature control. The grid etalon 24 may alternatively be tuned by tilting to vary the optical thickness between faces 28, 30, or by application of an electric field to an electrooptic etalon material. Grid etalon 24 may be thermally controlled to prevent variation in the selected grid which may arise due to thermal fluctuation during operation of external cavity laser 10. Grid etalon 34 alternatively may be actively tuned during laser operation as described in the U.S. Patent Application Ser. No. [_____]09/900,474 entitled "External Cavity Laser with Continuous Tuning of Grid Generator" to inventors Oaiber et al., co-filed herewith, and incorporated herein by reference. Various other types of grid generator other than a grid etalon maybe used with external cavity laser 10.

Please delete paragraph 25 and replace with:

> Wedge etalon 26 also acts as an interference filter, with non-parallel reflective faces 32, 34 providing tapered shape. Wedge etalon 26 may comprise, for example, a tapered transparent substrate, a tapered air gap between the reflective surfaces of adjacent transparent substrates, or a thin film "wedge interference filter. Wedge etalon 26 as shown in FIG. 1 is only one tunable element or channel selector which may be used in accordance with the invention in an external cavity laser. Wedge etalon 26 may be replaced with a variety of tunable elements other than an etalon, such as grating devices and electro-optic devices. The use of an air gap wedge etalon as a channel selector is described in U.S. Patent No. 6,108,355, wherein the "wedge" is a tapered air gap defined by adjacent substrates. The use of pivotally adjustable grating devices as channel selectors tuned by grating angle adjustment and the use of an electro-optic tunable channel selector in an external cavity laser and tuned by selective application of voltage are described in U.S. Patent Application Ser. No. 09/814,646 to inventor Andrew Daiber and filed on March 21, 2001. The use of a translationally tuned graded thin film interference filter is described in U.S. Patent Application Ser. No. 09/814,646 and in U.S. Patent Application Ser. No. [_____]09/900,412 entitled "Graded Thin Film Wedge Interference Filter and Method of Use for Laser Tuning" to inventors Hopkins et al., co-filed herewith. The aforementioned disclosures are incorporated herein by reference.

Please delete paragraph 32 and replace with:

During tuning of wedge etalon 26[ ], the length of the laser external cavity may also be tuned by positional adjustment of end mirror 14 using another tuning mechanism (not shown) which may comprise a DC servomotor, solenoid, voice coil actuator, piezoelectric actuator, ultrasonic driver, shape memory device, or other type of actuator. In certain embodiments, end mirror 14 may be positioned using selective heating or cooling of a compensating element coupled to the end mirror, as disclosed in U.S. Patent Application Ser. No. [_____]09/900,443 entitled "Laser Apparatus with Active Thermal Tuning of [End Mirror]External Cavity" to inventors [Rice]Tuganov et al., filed concurrently herewith and incorporated herein by reference. The tuning of an external laser cavity with an electro-optic element according to error signals derived from voltage monitored across a gain medium is described in U.S. Patent Application Ser. No. [_____]09/900,426 entitled "Evaluation and Adjustment of Laser Losses According to Voltage Across Gain Medium" to inventors Daiber et al., filed concurrently herewith and incorporated herein by reference.

Please delete paragraph 38 and replace with:

A heat source 54 may be used to heat gain medium 12 when gain medium 12 is not powered, in order to maintain an elevated temperature for the anti-reflective coating on the output facet 16 and prevent condensation thereon when external cavity laser 10 is not in use. As shown heat source 54 comprises a thermoelectric controller coupled to gain medium 12. Thermoelectric controller 54 may also be used during operation of gain medium 12 to thermally control the optical thickness across gain medium 12 between facets 16, 18. One or more additional heating elements (not shown) may be positioned internally or externally to the hermetically sealed enclosure 11 to maintain elevated temperatures for selected components to prevent condensation of contaminants thereon. Thus, heating may be used in connection with the end mirror 14 or channel selector 26 to maintain a temperature higher than the activated carbon drain 48, moisture trap 50 and/or the sacrificial surface 52, to prevent the contamination of optical surfaces 32, 34. The selective heating of critical optical components and optical surfaces in an external cavity laser is also described in U.S. Patent Application Ser. No. [_____]09/900,429 entitled "External Cavity Laser with Selective Thermal Control" to inventors Daiber et al., co-filed herewith and incorporated herein by reference.

Please delete paragraph 56 and replace with:

Various other optical components may be subject to selective thermal control by mounting onto substrate 92 or onto other thermally controlled substrates (not shown). For example, grid generator 24 and/or a coarse spectrometer (not shown) may be positioned on substrate 92. Selective thermal control of optical components in an external cavity laser is also described in U.S. Patent Application Ser. No. [_____]09/900,429 entitled "External Cavity

Laser with Selective Thermal Control" to inventors Daiber et al., co-filed herewith and incorporated herein by reference.

In the Claims:

1. (Amended) A laser apparatus, comprising an external cavity laser having an external cavity and a laser source therein, and a hermetically sealable container configured to enclose said external cavity laser in an inert atmosphere.

4. (Amended) The apparatus of claim 3, wherein said [external cavity] laser source comprises a gain medium having [a]first and second output facets, said second output facet having an anti-reflective coating thereon.

5. (Amended) The apparatus of claim 4, wherein said external cavity laser further comprises an end mirror, said end mirror and said first output facet of said gain medium defining [an]said external cavity, said gain medium to emit[ting] a beam from said second output facet along an output path.

6. (Amended) The apparatus of claim 5, further compris[es]ing a tuning assembly operatively coupled to said end mirror and configured to adjust said end mirror, in said hermetically sealable container.

7. (Amended) The apparatus of claim 3, wherein said external cavity laser further comprises a grid generator.

8. (Amended) The apparatus of claim 1, wherein said external cavity laser further comprises a channel selector.

9. (Amended) The apparatus of claim 8, further comprising a tuning assembly operatively coupled to said channel selector and configured to adjust said channel selector.

12. (Amended) The apparatus of claim 1, wherein said inert atmosphere [is]comprises a gas selected from nitrogen, helium, neon, argon, krypton, xenon, a nitrogen-helium mix, a neon-helium mix, a krypton-helium mix, or a xenon-helium mix.

13. (Amended) The apparatus of claim 3, further comprising an optical fiber extending into said hermetically sealable container and positioned to receive optical output from said external cavity laser, and a fiber feedthrough, configured to hermetically seal said optical fiber.

22. (Amended) A method for fabricating an external cavity laser, comprising:

(a) providing an external cavity having a laser source therein; and

(b) hermetically sealing said external cavity laser in an inert atmosphere within a hermetically sealed container.

23. (Amended) The method of claim 22, wherein said [external cavity] laser source comprises a gain medium having an anti-reflective surface thereon, and said external cavity comprises an end mirror positioned in an optical path defined by a beam emitted from said gain medium.

24. (Amended) The method of claim 23, further comprising providing[wherein said external cavity laser comprises] a tuning assembly operatively coupled to said end mirror and configured to adjust said end mirror.

25. (Amended) The method of claim 22, further comprising providing[wherein said external cavity laser comprises] a grid generator within said external cavity.

26. (Amended) The method of claim 22, further comprising providing[wherein said external cavity laser comprises] a channel selector within said external cavity.

27. (Amended) The method of claim 26, <u>further comprising providing</u>[wherein said external cavity laser comprises] a tuning assembly operatively coupled to said channel selector and configured to adjust said channel selector.

29. (Amended) The method of claim 22, further comprising vacuum baking at least one [high]outgassing component of said external cavity laser prior to said hermetically sealing.

33. (Amended) A laser apparatus, comprising:

(a) an external cavity laser <u>having an external cavity and a laser source therein</u>; and

(b) means for hermetically sealing said external cavity laser in an inert atmosphere.